

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Unlicensed Operation in the TV Broadcast)	ET Docket No. 04-186
Bands)	
)	ET Docket No. 02-380
Additional Spectrum for Unlicensed Devices)	
Below 900 MHz and in the 3 GHz Band)	

To: The Commission

REPLY TO OPPOSITIONS TO PETITIONS FOR RECONSIDERATION

Cellular South, Inc. (“Cellular South”),¹ by its attorneys and pursuant to the FCC Rule Section 1.429, submits its reply to the oppositions filed to its Petition for Reconsideration (“Petition”) of the Commission’s *Second Memorandum Opinion and Order*, 25 FCC Rcd ____, 51 Comm. Reg (P&F) 578, FCC 10-174 (September 23, 2010) (“Second M&O”), in the above captioned proceeding. As shown below, Cellular South’s Petition should be granted in order to provide Lower Block A wireless licensees with equivalent interference protection to that enjoyed by other TV band incumbents.

In its Petition, Cellular South requested the Commission to take the following three steps to assure that unlicensed television band devices (“TVBDs”) will not interfere with Lower Block A wireless operations:

¹ Cellular South is the nation’s largest privately-held wireless carrier. It currently provides wireless services to some 850,000 customers throughout Mississippi and in portions of Alabama, Tennessee and Florida. Through its subsidiary, Cellular South Licenses, LLP, it holds licenses to operate wireless systems on Lower Block A, and recently announced its plans for building out some of those licenses. In effecting its build-out, it is facing potential interference from facilities which operate on television channel 51, directly adjacent to Lower Block A spectrum, including full service and low power television stations. It would face similar interference from the unlicensed TV band devices (“TVBD”) authorized in this proceeding.

--Provide for registration of Lower Block A base stations in the TV bands database;

--Prohibit fixed TVBD operation on TV Channel 51; and

--Limit personal/portable TVBD operation on TV Channel 51 to 40 mW and adopt the adjacent channel separation table in FCC Rule Section 15.712(a)(2) as the minimum distance to Lower Block A base station coordinates for personal/portable TVBDs.

These three steps, Cellular South explained, are designed to provide Lower Block A wireless systems with protection equivalent to that granted to other TV band incumbents in light that Lower Block A systems are directly adjacent to TV Channel 51 throughout the nation.

In response to its Petition, various parties commented on Cellular South's proposals. Significantly, no party questioned the fact that without additional interference protection, Lower Block A licensees would likely suffer destructive interference. Commenting parties universally supported Lower Block A licensee base stations being included in the TV bands databases and application of required distance separation of adjacent channel TVBDs from Lower Block A wireless base stations. However, these parties disputed Cellular South's call to prohibit fixed TVBDs from operating in adjacent TV channel 51.

In this vein, Motorola Solutions acknowledged the potential for destructive interference to Lower Block A systems, stating,

With respect to the petition submitted by Cellular South, Motorola Solutions believes that the Commission should consider the recommendations to provide for registration of the out-of-band Lower 700 MHz Block A base stations in the TV Bands database and to limit the use of personal/portable TVBD operation on TV Channel 51.

Motorola Solutions Opposition at 5-6. Motorola, however, opposes Cellular South's request that the Commission prohibit fixed TVBDs operation on Channel 51. Motorola proposes merely allowing Channel 51 TVBD operation "subject to similar adjacent channel separation distances that are adopted for licensed TV Station incumbents." In line with this recommendation,

Motorola proposes “a blanket 2 kilometer circular adjacent keep-out zone around each registered out-of-band base station.” Motorola Solutions Opposition at 6.

Similarly, the Wireless Internet Service Providers Association (“WISPA”) notes that it “is sensitive to the potential for interference to Block A licensees,” but suggests that Cellular South’s proposal to prohibit fixed TVBD operation on Channel 51 is overly restrictive. WISPA would instead make registration of base stations mandatory to provide adjacent channel protection through the distance separation requirements in the rules.² Opposition of WISPA at 1-2. *Accord* Opposition of Wi-Fi Alliance at 4 (“The Wi-Fi Alliance supports expanding the TV bands device databases to include locations and characteristics of licensed wireless facilities’ base station receivers, as Cellular South requests”).³

Cellular South appreciates that even the proponents of liberalized rules for TVBDs recognize the need for the Commission to modify the “white space” rules to ensure protection of Lower Block A wireless systems from destructive interference from adjacent channel operation. Thus, no one disputes the need to provide for inclusion of Lower Block A base stations in the TV bands databases and to provide appropriate distance separation for those TVBDs allowed to operate on Channel 51. Rather, the one area of disagreement is whether fixed TVBDs should be

² Cellular South obviously does not object to mandatory registration of Lower Block A base stations in the TV bands database since inclusion in the database is necessary for protection from portable/personal TVBDs; however, Cellular South disputes that registration alone is sufficient to prevent harmful interference to Lower Block A base stations from adjacent channel fixed TVBDs.

³ *See also* the fallback position of the Public Interest Spectrum Coalition (“PISC”) (at 8-9) “that the Commission consider, in the alternative, permitting the requested registration of [Lower] A Block base stations in the TV Bands Database, but with protection against TVBDs operating above 40 mW *only* within a well-defined exclusion zone that is no larger than necessary to avoid harmful interference under real world conditions from fixed and personal/portable TVBDs, respectively.” PISC generally opposes Cellular South’s Petition as untimely. For the reasons stated in the Petition itself, PISC’s position should be rejected. Moreover, given that all parties recognize the need for additional protections for Lower Block A systems, refusal to consider Cellular South’s Petition would plainly be contrary to the public interest.

allowed to operate on adjacent Channel 51 within the protected coverage contours of Lower Block A systems.

The scheme the Commission adopted for operation of fixed TVBDs bans them within the protected contours of adjacent channel television stations. FCC Rule Section 15.712(a)(2). Opposing commenters gloss over this fact, if not completely ignore it. Providing equivalent protection to Lower Block A systems requires a similar prohibition on operation of fixed TVBDs within the protected contours of Lower Block A systems.⁴

With specific regard to Cellular South's proposal to exclude fixed TVBDs from Channel 51, both Motorola Solutions and PISC suggest that outright exclusion from Channel 51 is not appropriate in light that build out of Lower Block A systems has not yet occurred. That position ignores, however, that Lower Block A systems are authorized throughout the United States and are expected to be fully built out. Thus, their protected service contours in the aggregate cover the entire country.

Although Lower Block A systems are not yet fully built out, they are on a build out schedule that will require them to provide service over at least 35 percent of the geographic area of each of their license authorizations no later than June 13, 2013 (or within four years of initial license grant if the initial authorization in a market is granted after June 13, 2009), and at least 70 percent by the end of the license term. *See* FCC Rule Section 27.14(g). If the 35 percent construction benchmark is not satisfied for a license, the term of that license will be reduced by two years and the licensee may be subject to enforcement action, including forfeitures. In addition, a licensee that provides signal coverage and offers service at a level that is below this interim benchmark may lose authority to operate in part of the remaining unserved areas of the

⁴ *See also* discussion, *infra* concerning adjacent channel protection afforded to land mobile licensees operating on TV Channels 14-20.

licensed area. FCC Rule Section 27.14(g)(1). If the licensee fails to provide signal coverage and offer service to at least 70 percent of the geographic area of its license authorization by the end of the license term, that licensee's authorization will terminate automatically without Commission action for those geographic portions of its license in which the licensee is not providing service, and those unserved areas will become available for reassignment. The licensee may also be subject to enforcement action, including forfeitures. FCC Rule Section 27.14(g)(2).

In adopting these rules, the Commission stated, “We also impose certain reporting requirements intended to help the Commission monitor buildout progress during the license term. We expect that licensees will take these construction requirements seriously and proceed toward providing service with utmost diligence. As such, we do not envision granting waivers or extensions of construction periods except where unavoidable circumstances beyond the licensee’s control delay construction.” *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, 22 FCC Rcd 15348, 15289 (2007). Thus, Lower Block A licensees are under a strict build-out requirement, which should within a relatively short time period, ensure service to most of the country.

It would be extremely wasteful to first allow fixed TVBD operation on Channel 51, only to then require removal of these facilities once Lower Block A systems are built out. Moreover, Lower Block A systems should at least receive protection equivalent to those land mobile facilities operating on TV Channels 14-20 in major metropolitan areas. With respect to those facilities, the Commission has adopted very strict adjacent channel protection criteria. TVBDs may not operate at distances less than 131 km from adjacent channel operations from the coordinates of the metropolitan areas where such land mobile operations are based. Similarly, for PLMRS/CMRS operations authorized by waiver outside of these metropolitan areas adjacent channel TVBDs may not operate closer than 51 km, respectively from a base station. FCC Rule

Section 15.712(d). Application of these criteria to Lower Block A systems plainly supports a prohibition on Channel 51 TVBD operation. Once those systems are built out, there is likely to be no place in the United States -- save perhaps portions of the Alaskan wilderness and in large government land areas -- that are less than 51 km from a Lower Block A base station.

Finally, it is important in this regard to account not only for the effect of the individual interferer, but also to account for the potential increase in the noise floor resulting from the likely multitude of TVBDs that can be expected to populate the television band on Channel 51. Thus, looking at the minimum separation distance from an individual interferer fails to account for the likely effect multiple TVBDs have for raising the overall noise floor.

It is an established fact of physics that radio signals from multiple transmitters have the capability to reinforce one another and result in interference far greater than from any one transmitter. As the attached engineering statement of Clarence M. Beverage explains, the Commission has long recognized that multiple interfering signals on the same frequency add in a predictable way which must be considered to avoid interference. FCC Rule Section 73.182(k) describes this process. Essentially, the cumulative level of interference from other sources is calculated using the root-sum-square ("RSS") values of interfering field strengths. For example, Mr. Beverage explains that

FCC OET Bulletin No. 69 sets the 41 dBu F(50,90) contour as the limit of protected service and the D/U ratio at 15 dB. Under this standard, interference could be considered to exist when the 26 dBu F(50,10) interfering contour overlaps the 41 dBu F(50,90) service contour. However, if at a point immediately outside the 41 dBu contour four signals exist which each have a field strength of 25 dBu, the total interference by the formula above, which is mathematically equivalent to the Part 73 RSS method, will be 31 dBu. This represents a significant increase in the noise floor and a cause of interference to Lower Block A wireless licensee base station facilities not countenanced in the Second Memorandum Opinion and Order.

Thus, merely setting a minimum distance separation of Channel 51 for any fixed TVBD is unlikely to fully control interference to Lower Block A wireless systems where there are likely to be multiple TVBDs contributing to the noise floor.

As set forth above and in Cellular South's Petition, the Commission should reconsider the Second M&O to afford Lower Block A wireless systems with equivalent adjacent channel interference protection to that enjoyed by other TV band incumbents. There is no dispute that Lower Block A base stations should be allowed to register in the TV bands database so that TVBDs may afford them the required separation protection. Likewise, no dispute apparently exists that personal/portable devices should be limited to 40 mW EIRP and be subject to the adjacent channel separation criteria set forth in FCC Rule Section 15.712(a)(2). The only area of dispute concerns whether fixed TVBDs should be prohibited from operating on television channel 51, which is adjacent to Lower Block A base receive facilities. The provision of comparable protection of Lower Block A systems requires exclusion of fixed TVBDs from Channel 51 just like fixed TVBDs are prohibited within the contours of adjacent channel TV stations and may not operate on adjacent channels within the service areas of land mobile stations operating on television channels 14-20. For all of these reasons, Cellular South's Petition for Reconsideration should be granted.

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